Evidence Based Practice – Ideas for Academic Librarians

Lili Luo
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OK-ACRL
Topics

• Definition and history of evidence based practice
• Process of evidence based practice
• Formulation and operationalization of the “Question/Problem”
In 2016, *Library Journal* identified 11 essential skills librarians are expected to master in the next 20 years. One such skill is:

“the ability to determine the data needed to make decisions, understand how to collect, analyze, and gain insight from that data, and present the accompanying narrative to explain it to others”
Evidence Based Medicine

Evidence Based Librarianship
- Medical Librarianship

Evidence Based Library and Information Practice (EBLIP)
- Librarianship in General

EBLIP involves

- methods for resolving daily problems in the profession through the integration of experience and research

- asking questions, finding information to answer them (or conducting one’s own research) and applying that knowledge to our practice

(Koufogiannakis, Slater & Crumley, 2004)
<table>
<thead>
<tr>
<th>EBLIP process</th>
<th>5A</th>
<th>Updated 5A</th>
</tr>
</thead>
<tbody>
<tr>
<td>define the problem or formulate the question</td>
<td><strong>Ask</strong></td>
<td>Articulate (the problem)</td>
</tr>
<tr>
<td>find the evidence</td>
<td><strong>Acquire</strong></td>
<td>Assemble (the evidence base)</td>
</tr>
<tr>
<td>critically appraise the evidence</td>
<td><strong>Apprise</strong></td>
<td>Assess (the evidence)</td>
</tr>
<tr>
<td>apply the appraised evidence to the problem</td>
<td><strong>Apply</strong></td>
<td>Agree (the actions)</td>
</tr>
<tr>
<td>quality assurance</td>
<td><strong>Assess</strong></td>
<td>Adapt (the implementation)</td>
</tr>
</tbody>
</table>

(Booth & Brice, 2004; Booth, 2009)
Evidence Based Library and Information Practice (EBLIP)

Evidence
### What is evidence

#### Hard Evidence

- Published literature
- Original research
- Analysis of virtual or physical artifacts
- Internal statistics
- External statistics
- Publicly available documents
- Blogs and social media
- Conference presentations, proceedings and posters

#### Soft Evidence

- Input from internal colleagues
- Input from external colleagues
- Input from user community
- Anecdotes
Ask/Articulate (the problem)

Or

Formulate the Research Question
If I had an hour to solve a problem and my life depended on it, I would use the first 55 minutes determining the proper questions to ask.

Albert Einstein
Research Goal
To determine the value of active learning in online information literacy instruction

Types of Data Needed
1. Data about the effectiveness of active learning activities in online classes
2. Data about the advantages and disadvantages of active learning activities in online classes from the student perspective

Research Questions
1. Do students in online classes with active learning activities perform better than those in traditional online classes?
2. Do students in online classes with active learning activities have a higher satisfaction level than those in traditional online classes?
3. What are student perceptions of the content, length, and implementation of the active learning activities in online classes?
Descriptive questions seek to describe an observed social phenomenon and find out “what is happening” or “what exists”.

Relationship questions aim at examining the correlation between two or more variables.

Causality questions seek to determine whether/to what degree one or more variables (e.g., a program or a stimulus) causes or affects one or more outcome variables.
Can the research question hold my interest?

Can the research question pass the “so what” test?

Is the research question well-grounded in existing research?

Are all the terms in the research question unambiguous and operationally definable? Is the research question empirically answerable?

Example: Do students in online classes with active learning activities perform better than those in traditional online classes?

Is answering the research question feasible, given the constraint of time, budget, expertise, manpower, and ethics?
A **research question** should articulate what we seek to study – that is, what kind of data we are collecting in the study.

A common mistake – **mixing up the research goal and the research question**

How can XX library improve services for international students?

Data needed – current status of how international students use or not use library services

How do international students use library services?
Operationalize the Research Question

Key Concepts and Steps
Variables and attributes

Variables are logical groupings of attributes.

“Research is a language of variables.”
- Earl Babbie (2013)

Example

<table>
<thead>
<tr>
<th>Variable</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library setting</td>
<td>Academic library, public library…</td>
</tr>
<tr>
<td>Task subject</td>
<td>Humanities, physics, law…</td>
</tr>
</tbody>
</table>
Relationship between two variables

Independent Variable Predicts/Affects Dependent Variable

Influences CHANGE in the Dependent Variable

CAUSE

EFFECT
Levels of measurement - Nominal

Attributes are discrete, and have only the characteristics of exhaustiveness and exclusiveness.

Disney Princess

- Cinderella
- Elsa
- Moana
- Belle
- ...

Eye color

- Brown
- Green
- Blue
- ...

Levels of measurement - **Ordinal**

Attributes are discrete, and can be logically rank-ordered.

Age

- Under 18
- 18 - 30
- Above 30

Satisfaction with library reference service

- Not satisfied
- Somewhat satisfied
- Very satisfied
Levels of measurement - Interval

Attributes are numerical values (continuous), but 0 is not a true 0.

IQ

<table>
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<th>95</th>
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<th>10</th>
<th>11</th>
<th>11</th>
<th>12</th>
<th>12</th>
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<tbody>
<tr>
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<td>0</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

Temperature

| -20 | -10 | 0  | 10 | 20 | 30 | 40 |
Levels of measurement - Ratio

Attributes are numerical values (continuous), and 0 represents a true value.

<table>
<thead>
<tr>
<th>Income</th>
<th>$0</th>
<th>$10,00</th>
<th>$20,00</th>
<th>$30,00</th>
<th>$40,00</th>
<th>$50,00</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Age

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
</tr>
</thead>
</table>
Research Question

Variable 1  Variable 2  Variable 3

Operational definition for each variable

Data collection instrument (e.g. survey, interview guide, coding scheme)
An operational definition is the concrete and specific definition of a concept in terms of how it will be studied and measured.

Research question: How do international students at University of Central Oklahoma use library reference services?

- **International students**: international undergrads that are members of the Chinese Student Association and Korean Student Association
- **Library reference service**: human-intermediated information services provided by the University library, including chat, email, reference desk, phone and individual consultation
- **Use**: types of reference service used, purposes of using reference service (course assignment, research assistance, personal information needs, other), outcome of using reference service (the extent to which information needs are met), frequency of use
**Students:**

What is your home country?
- China
- Korea
- Other, please specify

What is your grade level?
- Freshman
- Sophomore
- Junior
- Senior

What is your gender?
- Male
- Female
- Non-binary
- Other
Use of Library reference services:

Which of the following library reference services have you used in the past three months? Select all that apply.
• I talked to a librarian at the reference desk.
• I called a librarian on the phone.
• I chatted with a librarian online.
• I emailed a librarian.
• I texted a librarian.
• None of the above. (Exit the survey)

How many times have you used the services selected above in the past three months?
• Less than 5; 5 to 10; More than 10

What were your purposes of using these services? Select all that apply.
• Completing course assignments
• Completing my work as a research assistant for a professor
• Satisfying a personal need for information
• Other please specify_______________

To what extent do you agree with this statement - “I received the information I needed from the library reference services I used.”
• Disagree 1 2 3 4 5 Agree
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Survey questionnaire design
As we operationalize our research question, how do we know whether the question is appropriate for quantitative research or qualitative research?

- **Nuanced and in-depth examination of a phenomenon (narrative) VS. Quantification of observations (numbers)**

- **Exploring concepts VS. Measuring variation**
A university library is planning to implement an Open Educational Resources initiative. Their goal is to understand how to effectively and successfully create an OER guide that meets the needs of instructional faculty. The library will conduct a study to inform this initiative.

1. Based on this research goal, what types of data are needed?

2. Based on the needed data, what is the research question?

3. How is the research question operationalized – what are the operational definitions for the research question?
Institute for Research Design in Librarianship

Questions?

Thank you